

portrait orientation directed at the user, as illustrated in FIG. 11. By appropriate focusing this could be used for video calls with the picture of the user being shown and transmitted. In the 360° position, the camera can be used in a more conventional manner with the camera view away from the user, as shown in FIG. 10. Display 16 again operates as a view finder to show the field of view of the camera 31, but in landscape orientation.

[0060] Notepad 29 may be enabled in the 180° position. A function button, such as shown at 33 in FIG. 2, may be used to indicate to the processor 1, that the notepad feature is selected. Processor 1 would then enable the note pad module 29 and display 16 would be touch sensitive. This can be a pointer operated sensitivity allowing free hand markings for a true note pad feel. In the 180° position the device can be oriented for operation with the keypad 14 at the right or left hand side, as shown in FIGS. 13 and 14. This also allows convenient operation for either right or left handed users. The flat nature of this orientation allows the notepad function to be used on a table or other flat surface. The notepad feature is also enabled in the 360° position, as shown in FIG. 11. The display 16 is oriented on the back of the folded unit, shown in FIG. 3 and in the reverse position may be conveniently hand held for use as a notepad, as shown in FIG. 15.

[0061] In a further embodiment, the mobile communications terminal 10 of FIGS. 1-3 is constructed with a clock radio, photo module 25 which provides a clock function in association with a radio function for alarm or listing purposes. A photo could also be displayed either as a temporary or extended display. This feature is enabled in an intermediate position, for example approximately 300°, as shown in FIG. 4b and FIG. 12. In this position panel 22 operates as a base with panel 24 extending upward having its surface 24a in a conveniently viewable orientation. As shown in FIG. 12, surface 24a is constructed with the display 16 in full view. In this position main control processor 1, enables the clock radio photo module 25 and causes the display of time, radio selection, or photo.

[0062] In another embodiment, a multi-function device 100 is constructed as a combination personal digital assistant and a mobile communication terminal, as illustrated in FIGS. 7-9. PDA/mobile terminal 100 is constructed with a two panel housing that encloses the components of the device 100 in the general configuration illustrated in FIG. 9 to provide a wider variety of functions and applications. The device is constructed having a first panel 122 and a second panel 124. First panel 122 has a front surface 122a and a back surface 122b. Second panel 124 has a front surface 124a and a back surface 124b.

[0063] As shown in FIG. 7 the front surfaces 122a and 124a are shown in the flat 180° position. A primary display screen 116 is mounted on front surface 124a of the second panel 124 and is constructed to provide a user interface component adapted to display data relating to the various functions provided, such as, for example, communications, a PDA, note pad and other data displays depending on the operational selection of the user and the relative position of the panels. A primary keyboard 114 is provided on the front surface 122a of the first panel 122, to provide a means of inputting data for use in telephone functions, PDA functions, and other functions as necessary. Appropriate function but-

tons 104, such as soft keys 109, 133 and browser keys 107, 135 in FIGS. 7 and 8 are also provided to facilitate selection of features and browsing through menus associated with a particular feature.

[0064] In FIG. 8, the back side of the device 100 of FIG. 7 is illustrated having back side 122b and 124b. A secondary display screen 108 is mounted on the back surface 122b of the first panel 122. Display 108 may be conveniently used in the closed (0°) position (see FIG. 4f). A secondary keypad or grouping of function buttons, such as buttons 109 and browser key 107, are provided on the back side 122b for use with the camera and other functions accessible in the various positions in which the back of the second panel is exposed, such as the 0° position.

[0065] A camera lens 123 is mounted for use on the back surface 124b of second panel 124 and may be used either in the closed, 0°, position in association with the secondary display panel 108 or in an open position, such as in the range of 90° to 180° in association with the primary display panel 116. Camera usage is optimized in the 0° position. A receptacle connector 126 may be provided for the connection of an accessory flash unit (not shown).

[0066] A free standing mode is provided at approximately 270°-300° which allows the device to be placed with the primary screen exposed in an easily viewable position and the second panel providing a base to allow the device to be supported upright without the need for holding the device. In this free-standing position, the use of the alarm clock and radio function is most convenient.

[0067] The device may also be extended flat for table use in the 180° orientation of the panels with the front surfaces of the first and second panels exposed for use and viewing. In this position, the PDA function is most accessible, but all features can also be used. The cellular phone is particularly well adapted for hands free operation in this position. In addition the function mode in which Internet access is allowed would also be selectable in the 180° position.

[0068] The functioning of the device 100 is controlled by a microprocessor 101 which monitors the relative position of the first and second panels 122 and 124 to identify accessible functions and assign functions to the components of the user interface. Certain of the keys provided will be soft keys, such as 107, 109, and 133 in that their function will be assigned by microprocessor 101, depending on the relative position of the first and second panels and the function selected. In addition, the display driver 107 is designed to switch the display to the viewable primary display screen 116 or secondary display screen 108 in response to movement and position of the panels. The orientation and position of the display on the display screen 116 or 108 may also be changed to accommodate the user in the most convenient manner consistent with the function selected. Different menus and data may be displayed depending on the position of the panels and the selected use.

[0069] As shown in FIG. 9, the multifunction communication terminal 100 of FIGS. 7-9, comprises a system of components that are operatively interconnected to provide the combined functions of a camera 131, notepad 129, and mobile telephone 118. A main control processor 101 is supported by a memory 102 and processes data and commands from a mobile telephone module 118 and a notepad